[Office of Water Resources
Watershed Assessment Program
1201 Greenbrier Street
Charleston, WV 25311
304/558-2108

West Virginia Division of Environmental Protection

Cecil H. Underwood
Governor

Michael C. Castle
Director

May 26, 2000

MEMORANDUM

TO: Pat Campbell

FROM: Jeffrey Bailey, Wildlife Biologist

SUBJECT: Benthic Survey on Pats Branch

A benthic macroinvertebrate sample was collected from Pats Branch on May 24, 2000. WAP personnel included Karen Maes and Mike Whitman. The purpose of this study was to determine if Pats Branch is a perennial, intermittent, or wet-weather stream by examining the types of aquatic life present. Low flow conditions prevented the team from using standard kicknet sampling procedures. Instead, the sample was collected by hand-washing bottom substrate materials from shallow riffle areas into a bucket of water. Based on the aquatic organisms collected and the flow conditions observed during the visit Pats Branch appears to be an intermittent stream.

According to the Legislative Rules of the Water Resources Board, wet weather streams flow only in direct response to precipitation or whose channels are at all times above the water table. Intermittent streams are those which have no flow during sustained periods of no precipitation and which do not support aquatic life whose life history requires residence in flowing waters for a continuous period of at least six months. WAP personnel indicated that there was no precipitation during sampling. They also indicated that a light rain had fallen in the area within 24 hours of the sample event. The Automated Flood Warning System (www.afws.net) indicated that Cabell County received no measurable precipitation within 24 hours of the site visit. This suggests that the water in Pats Branch during the site visit was not the result of a recent precipitation event.

The aquatic organisms collected at the site appeared to indicate that Pats Branch is an intermittent stream. There were ten different taxa identified from the sample that had a total number of 296 organisms. Nearly 42 % of the sample was comprised of three snail taxa. The families Lymnaeidae and Physidae had representatives of varying size indicating early and late stages of development. The majority of snail species are thought to live nine to fifteen months (Pennak, 1978). They do aestivate and some Lymnacidae and Planorbidae are known to live as long as two to four years. In ponds and intermittent streams that are dry for a short period of time, thy may burrow in the mud during the unfavorable period (Pennak, 1978).

Tipulidae (cranceflies) were also collected in the sample. It is thought that all Tipulidae in the United States pass the winter as larvae (Pennak, 1978). This suggests that at least some water remains in Pats Branch during winter months.

It is important to note that no mayfly, stonefly, or caddisfly taxa were found in the sample. These organisms are generally the most indicative of intermittent and perennial streams since many of them have complex and extended life cycles. They are also generally sensitive to water pollution. It is possible that their absence from the sample is a result of poor water quality in Pats Branch and not limited stream flow.

Jeffrey E. Bailey
Wildlife Biologist

Cc: Pat Campbell
Steve Stutler
Janice Smithson